



2017 FACTS & FIGURES

U.S. AEROSPACE & DEFENSE

AAA
AEROSPACE INDUSTRIES
ASSOCIATION



David F. Melcher
President & CEO
Aerospace Industries Association

Today, America's Aerospace and Defense (A&D) industry is a thriving sector that embodies the best of our nation. Whether making our country more secure and globally competitive, enhancing aviation safety, extending the horizons of exploration and research, or driving the edge of innovation, the A&D industry is at the core of American economic strength and prosperity.

Despite global uncertainty, American A&D continues to contribute greatly to the U.S. economy. While the 2017 Facts & Figures does reflect several challenges presented by unstable, unpredictable funding streams, America's A&D industry posted another year of record-setting trade activity; its fifth consecutive time, including outperforming the national trade average. Globally, American A&D continues to represent the gold-standard for quality and reliability of products, serving as the nation's second-largest gross exporter and generating the largest positive trade balance of any US exporting sector.

The 2017 Facts & Figures also reiterates the importance of A&D in sustaining our nation's security, proven by the positive trends in global defense spending growth. Concurrently, research and development spending shared in those positive trends, with expansion across investments by both government and industry into the new and emerging technologies that represent the innovative nature at the heart of the A&D sector.

As the Voice of American Aerospace and Defense, the Aerospace Industries Association is proud to publish the 2017 Facts & Figures: The U.S. Aerospace & Defense Industry, with the support of IHS Markit. This report represents an important snapshot on the state of the American A&D industry, and serves as a reminder of the vital role it plays in the health of the domestic economy and global marketplace.

A handwritten signature in black ink that reads "David F. Melcher". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

KEY TRENDS IN THE U.S. AEROSPACE & DEFENSE INDUSTRY

In 2016, the U.S. Aerospace and Defense (A&D) industry supported 2.4 million American jobs, generated \$872 billion in sales, and reduced the U.S. trade deficit by a record \$90.3 billion. Without a doubt, A&D continues to be a pillar of the manufacturing and national security enterprise that our nation relies on – but this role cannot be taken for granted. Various headwinds, including slowing productivity, an aging workforce and evolving demand up and down the supply chain made 2016 a year of continuing transition for the industry. Combined, these and other factors resulted in a year of stagnant positions for several of the industry’s key indicators, such as employment, sales and gross domestic product.

These trends impacted both the industry’s commercial aerospace and defense and national security subsectors. On the commercial aerospace side, growth was muted due to slowing demand for civil aircraft from domestic and international operators. Concurrently, the defense and national security sector experienced continued

pressure as a result of the Budget Control Act of 2011 and uncertainty with respect to appropriations for key government agencies. In total, 2016 resulted in sales and jobs that were largely on par with the year prior: the commercial aerospace sector generated \$303.5 billion in sales and supported 490,000 jobs, and the defense and national security sector generated \$146.7 billion in sales and supported 355,500 jobs.

Foreign trade was a bright spot for the industry in 2016. Exports of A&D goods and services set a record of \$146 billion in 2016, which resulted in the industry’s largest positive trade surplus to date of \$90.3 billion – the highest of any U.S. industry sector. Research and development (R&D) also grew in 2016, as both government and industry expanded investments into new and emerging technologies. In 2016, government R&D spending relevant to A&D grew by 7.5% to \$84.7 billion, while industry R&D from the top 25 A&D firms grew by 8.7% to \$18.1 billion.



2.4
MILLION
JOBS



845k
DIRECT JOBS
1.6M
SUPPLY CHAIN
JOBS



\$872b
IN SALES



\$146b
IN EXPORTS

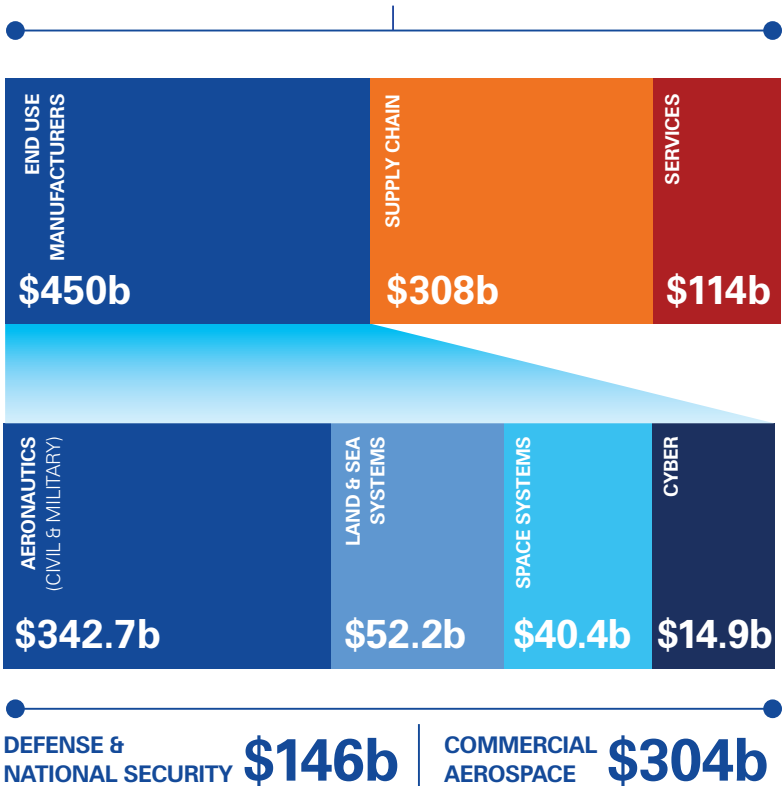
Sales/Output

In 2016, the nation's A&D industry generated \$872.1 billion in sales from companies producing goods and services throughout the industry and its supply chain. Compared to 2015, sales declined marginally by 0.7% or \$5.7 billion, and were down from a five-year high of \$882.9 billion in 2012.

Of the total output generated in 2016, \$450.1 billion, or 52%, was attributable to firms producing end-use goods and services including aircraft, space systems, land vehicles, ships, armaments and cyber, while the remaining \$422 billion, or 48%, was attributable to the industry's supply chain. Companies that provide services such as engineering, testing and information technology, which are part of the industry's supply chain, accounted for 27%, or \$113.8 billion, of total supply chain output.

By industry sector, commercial aerospace accounted for \$303.5 billion in sales, while the defense and national security subsector, accounted for \$146.7 billion. By industry group, sales for 2016 accounted for the following: \$342.7 billion for aeronautics, \$40.4 billion for space systems, \$52.2 billion for land and sea systems, and \$14.9 billion for cyber.

\$872B IN TOTAL INDUSTRY SALES

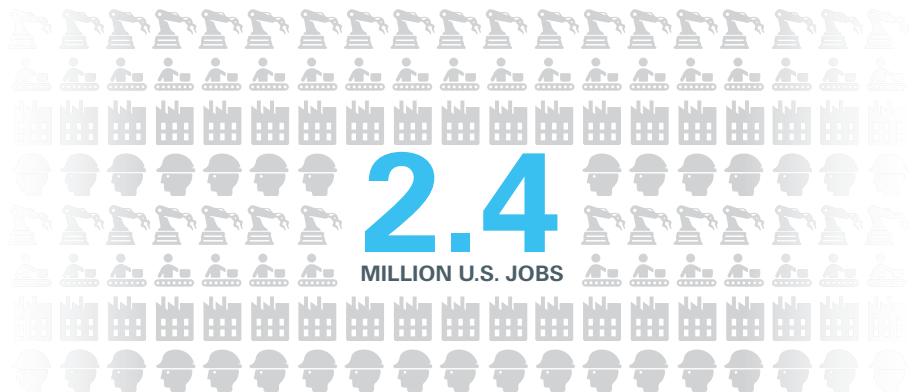
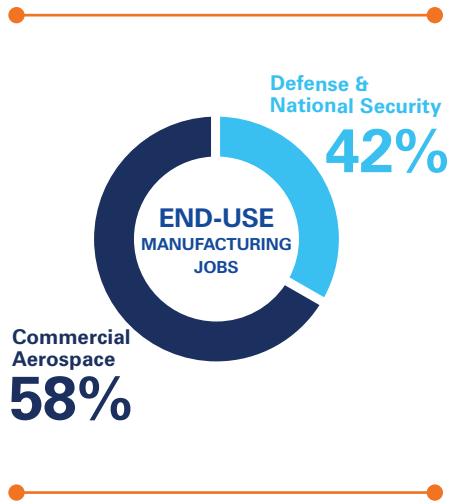
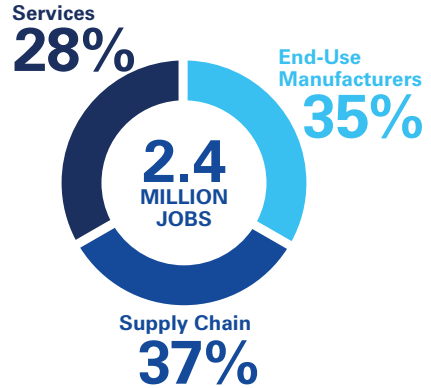


Employment

In 2016, A&D supported 2.4 million U.S. jobs in companies producing goods and services throughout the industry and its supply chain. Compared to 2015, industry employment declined marginally by 0.6% or 14,300 jobs, and was led by job losses in the industry's supply chain. Over the past five years, the industry's employment topline has grown by an annualized rate of 0.05%.

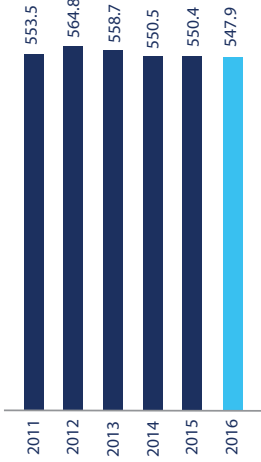
Of the total jobs supported in 2016, 845,500, or 35%, were attributable to firms producing end-use goods and services such as aircraft, space systems, land vehicles, ships, armaments and cyber, while the remaining 1.6 million, or 65%, were attributable to the industry's supply chain. Combined, A&D accounted for approximately 1.6% of the nation's total employment base and 13% of the nation's manufacturing workforce in 2016.

By industry sector, commercial aerospace accounted for 490,000 jobs, while the defense and national security sector, accounted for 355,500 jobs. By industry group, employment for 2016 accounted for the following: 547,900 for aeronautics, 79,000 for space systems, 140,900 for land and sea systems, and 77,700 for cyber.

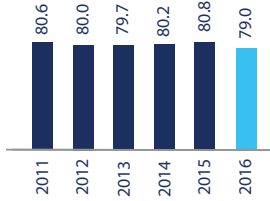


Employment Trends

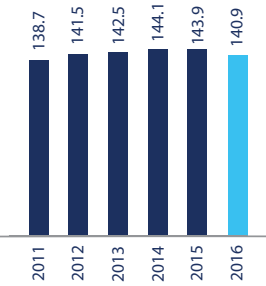
End-Use Manufacturing: (In Thousands)



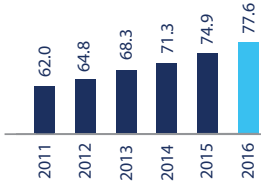
AERONAUTICS
(CIVIL AND MILITARY)



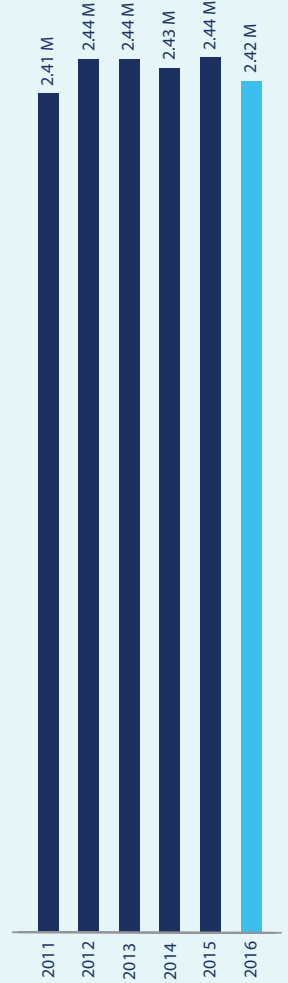
SPACE SYSTEMS



LAND & SEA SYSTEMS



CYBER



**TOTAL AEROSPACE
& DEFENSE**

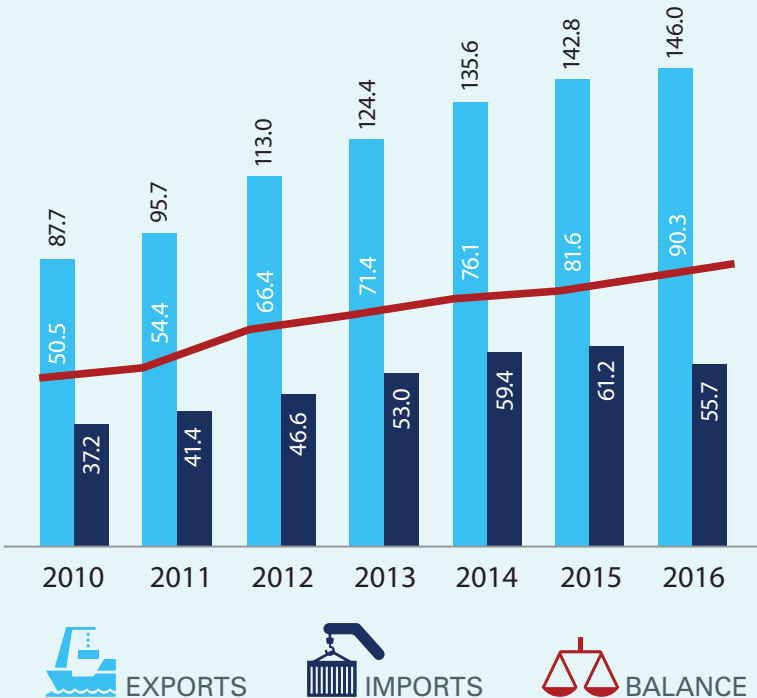
(Includes end-use manufacturing, supply chain, and services)

Foreign Trade

The U.S. A&D industry posted a fifth consecutive trade record in 2016, shipping \$146 billion of exports, and generating its largest positive trade balance to date of \$90.3 billion. A&D also continued a second year of outperforming the national trade average, growing by 2.2% over 2015 compared to a decrease of 3.3% for exports of all other U.S. goods.

Growth of A&D exports continued to stabilize in 2016 due to lower export volumes from the industry's civil aerospace sector. Exports of civil aerospace products including aircraft, engines and parts totaled \$123.7 billion – a 1.6% increase over 2015, which is lower than year-over-year gains for 2015 and 2014, which were 6.7% and 7.7%, respectively. On the other hand, shipments of military systems grew by 6% to a record \$22.3 billion in 2016.

U.S. Aerospace & Defense: Exports, Imports, and Balance of Trade (In Billions of Dollars)



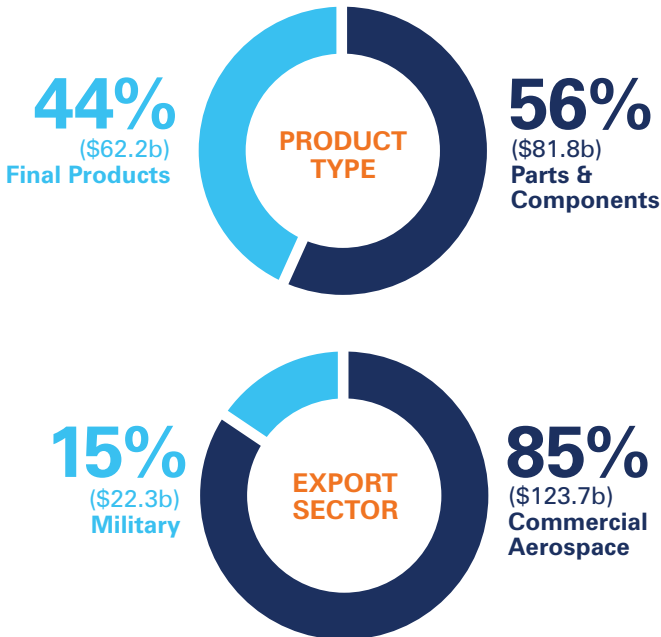
On a comparative basis, the A&D industry retained its title of second largest gross exporter among major U.S. industries, and generated the largest positive trade balance of any U.S. exporting sector – a distinction the A&D industry has enjoyed for several decades. As measured in gross exports, A&D ranked second behind the computers and electronics manufacturing sector, and was followed by exports from the automotive, chemicals, machinery and coal and petroleum sectors.

The top five export destinations for U.S. A&D products accounted for \$54.2 billion, or 37% of total A&D exports in 2016. The industry’s largest export destination was China, which accounted for \$14.7 billion of A&D exports, followed by the United Kingdom, France, Japan and Canada. By industry subsector, U.S. commercial aerospace exports were led by China, France and the United Kingdom, while exports of military systems were led by South Korea, Saudi Arabia and Australia.

On a regional basis, U.S. A&D exports experienced the largest gains in Europe and the Middle East (13.6% and 22.3% respectively), while the Americas and Asia-Pacific experienced the largest losses (-14.3% and -6.4%, respectively). In 2016, Europe edged-out the Asia-Pacific region as the industry’s largest export destination, receiving \$49.9 billion in U.S. exports, compared to the Asia-Pacific’s \$49.5 billion.

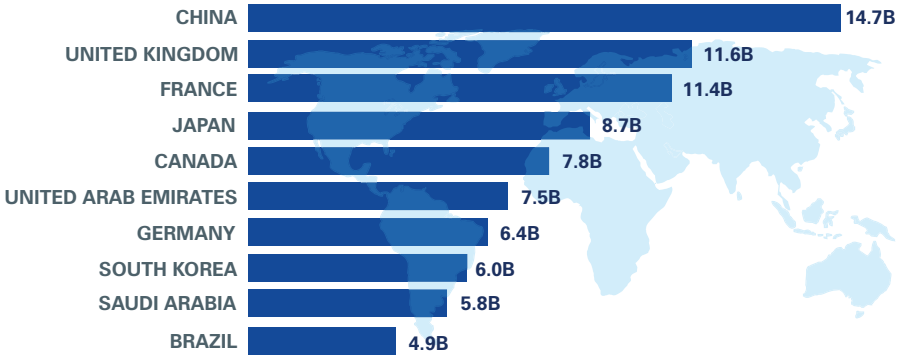
Domestically, U.S. A&D exports continue to be led by Washington state, which accounted for 32% of total A&D exports, and was followed by exports from California, Kentucky, Texas and Connecticut. As a percent of total state exports, A&D comprised the largest share in Washington state (59%), followed by Connecticut, Kentucky, Arkansas and Kansas.

Breakdown of U.S. A&D Exports:

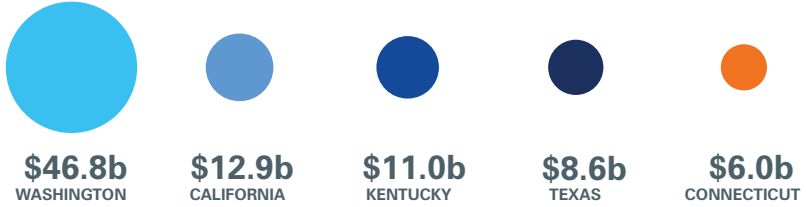


Top Destinations for U.S. A&D Exports

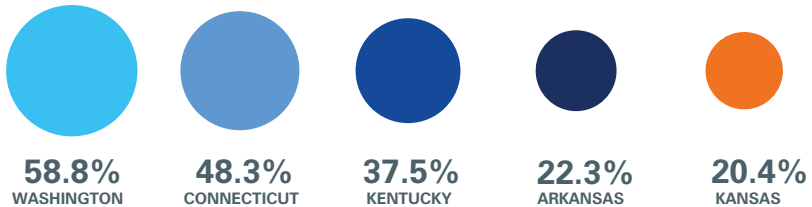
(Dollars in Billions)



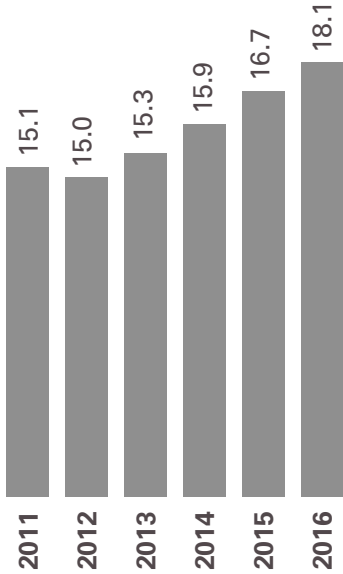
Top States for A&D Exports



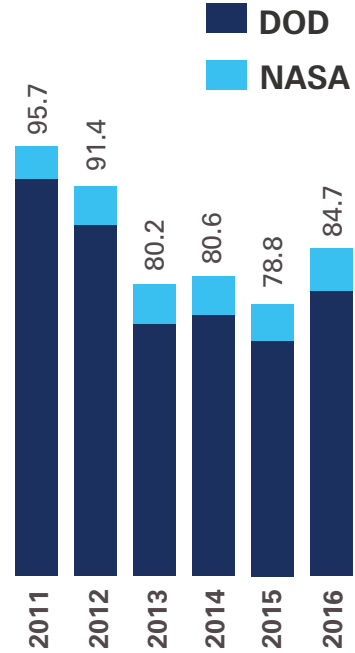
A&D's Share of Total State Exports



**Disclosed R&D Expenditures
for the top 25 U.S. A&D Firms**
(In Billions)



**Government RDT&E
Relevant to A&D**
(In Billions)



Research & Development

After several years of funding declines and stagnation, government funding of R&D pertinent to the A&D industry grew by 8% to \$84.7 billion in 2016. RDT&E spending from the Department of Defense (DoD) accounted for 84% percent (\$71.5 billion) of the total, while R&D spending from the National Aeronautics and Space Administration (NASA) accounted for the remaining 16%, or \$13.3 billion.

The top 25 U.S. A&D companies, ranked by size of gross sales in 2016, spent a disclosed \$18.1 billion on R&D in 2016, which is up \$1.4 billion, or 9% over 2015. Over the past five years, R&D spending from these companies has grown by increasing margins, driven by R&D investments from the largest companies, which has offset falling spend rates from smaller companies.

Methodology

This report is based on data developed both in partnership with IHS Markit and independently by the Aerospace Industries Association. Figures pertaining to the industry's employment and output levels were based on data from the U.S. Census Bureau, the Department of Labor, IMPLAN and proprietary data from IHS Markit. Figures regarding the industry's foreign trade activity were based on an analysis of trade data from the U.S. International Trade Commission and the United Nation's International Trade Statistics Database. Lastly, figures on government and industry R&D activity were based on company financial reports, agency budget documents, and data from the American Association for the Advancement of Science.

AIA defines the U.S. A&D industry as consisting of establishments that manufacture end-use platforms including civil and military aircraft, space systems, military vehicles, ships and armaments, as well as the thousands of suppliers that provide parts, components and services for manufacture of these systems. In 2017, AIA added companies that provide end-use cyber services to the definition of direct A&D companies.

About AIA

The Aerospace Industries Association of America (AIA) is the premier trade association representing the nation's leading aerospace and defense manufacturers and suppliers and is the authoritative voice on issues of civil and commercial space, commercial aviation, defense and security and national airspace systems. For nearly 100 years, since the Association's founding in 1919 by many of aviation's early pioneers including Orville Wright, AIA has been the industry voice shaping the policies that matter most to our members. AIA's expertise represents the interests of manufacturers and suppliers of civil, military, and business aircraft, helicopters, unmanned aerial systems, space systems, aircraft engines, missiles, materiel, and related components, equipment, services, and information technology.



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